

Claims

- [c1] An above-knee prosthesis having a knee joint demonstrating variable resistance comprising a thigh frame assembly that receives a thigh stump, a leg frame assembly with foot attached, a hinge interconnecting said thigh frame and leg frame assemblies to form an artificial knee joint, a closed hydraulic system further interconnecting said thigh frame and leg frame assemblies above and below said hinge to provide resistance to the flexion or extension of said artificial knee joint, a means to vary the resistance provided by said closed hydraulic system, and a means to translate the AP movement of said thigh stump into the degree of resistance provided by said closed hydraulic system.
- [c2] The above-knee prosthesis of claim 1, wherein the means to vary the resistance provided by said closed hydraulic system comprises a flow rate control valve.
- [c3] The above-knee prosthesis of claim 2, wherein the means of translating the AP movement of said thigh stump to the degree of resistance provided by said closed hydraulic comprises a linkage mechanism that communicates the AP movement of said thigh stump to said flow rate control valve.
- [c4] The above-knee prosthesis of claim 2, wherein the means of translating the AP movement of said thigh stump to the degree of resistance provided by said closed hydraulic comprises a sliding mechanism that communicates the AP movement of said thigh stump to said flow rate control valve.

- [c5] The above-knee prosthesis of claim 2, wherein the means of translating the AP movement of said thigh stump to the degree of resistance provided by said closed hydraulic comprises an electronic sensor and microprocessor wherein said sensor communicates movement of said thigh stump by electronic impulse to said microprocessor and said microprocessor further said thigh movement by electronic impulse to said flow rate control valve.
- [c6] The above-knee prosthesis of claim 4, further comprising additional sensors attached to the knee and ankle that provide information to said microprocessor that is combined with the information provided by the thigh stump sensor to more intelligently control said flow rate control valve.
- [c7] The above-knee prosthesis of claim 1 wherein said closed hydraulic system is housed substantially within said thigh and leg frame assemblies.
- [c8] The above-knee prosthesis of claim 1 wherein said closed hydraulic system is housed substantially outside said thigh and leg frame assemblies.
- [c9] The above-knee prosthesis of claim 2 wherein said flow rate control valve is housed within said thigh frame assembly.
- [c10] The above-knee prosthesis of claim 2 wherein said flow rate control valve is housed within said leg frame assembly.